

REMARKS

Claims 1, 3, 5, 7, 9, 11, 13, 17 and 19-21 are pending in this application. In response to the Office Action dated March 23, 2004 claims 1, 11, 13 and 21 have been amended. Care has been exercised to avoid the introduction of new matter. Adequate descriptive support for the present Amendment is apparent throughout the originally filed claims and disclosure, including Figure 5, Example 2 in Table. Applicants submit that the present Amendment does not generate any new matter issue.

Claims 11 and 13 were objected to as allegedly containing informalities. The Examiner suggested the removal of the phrase "the M is manganese or a metal of two or more kinds containing manganese as a main component" from claims 11 and 13. Claims 11 and 13 have been amended to remove the above phrase in accordance with the Examiner's suggestion. Accordingly, the Examiner is requested to reconsider and withdraw the objection over claims 11 and 13.

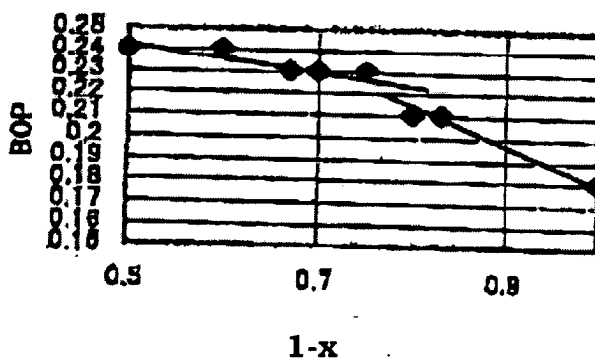
Claims 11 and 13 were rejected under 35 U.S.C. § 112, second paragraph. The Examiner asserted that it is unclear what the formulas of claims 11 and 13 encompass if the composition of x is "within $\pm 5\%$ " or y is "within $\pm 5\%$ ". Claims 11 and 13 have been amended to remove the above phrases. Therefore, it is respectfully submitted that the imposed rejection of claims 11 and 13 under 35 U.S.C. § 112, second paragraph is not legally viable and hence, solicit withdrawal thereof.

Claims 1, 3, 5, 7, 9, 11, 13 and 19-21 were rejected under 35 U.S.C. § 102(e) as being anticipated over Dahn et al. (U.S. Pat. No. 6,168,887, hereinafter "Dahn"). Applicants respectfully traverse the rejection for the reasons set forth *infra*.

In the Office action dated March 23, 2004, the Examiner, at page 6, asserted that Dahn discloses $\text{Li}_{2/3}\text{MnO}_2$ (col. 7, lines 41-42) and $\text{Li}_{2/3}\text{Mn}_{0.82}\text{O}_2$ (claim 13) and that both examples the lithium manganese oxide active material has a lithium quantity of 0.66 (2/3). The Examiner further stated that Dahn's layered lithium manganese oxide would inherently possess the same bond overlap population (BOP) value (more than or equal to 0.23) as the claimed invention. Applicants respectfully traverse.

Claims 1, 11, 13 and 21 have been amended to further define the present subject matter by reciting, in pertinent part, that $0.2 < x < 0.3$. As recognized by the Examiner, Dahn discloses $\text{Li}_{2/3}\text{MnO}_2$ (i.e. $\text{Li} = 0.66$ or $x = 0.33$). Support for the amendment is found at Figure 5, Example 2. In contrast, independent claims 1, 11, 13 and 21 each recite, in pertinent part, that the lithium deficient quantity x satisfies the following expression: $0.2 < x < 0.3$. Moreover, independent claims 1, 11, 13 and 21, each recites in pertinent part, that the positive electrode active material includes the layered lithium manganese compound having a bond overlap population (BOP) value that is more than or equal to 0.23. Applicants submit that Dahn fails to disclose a value of x that is more than 0.2, but less than 0.3, as recited in the independent claims.

The following graph is presented which illustrates a relationship between BOP and "1-x" values based on the table of Figure 5 of the present invention:



As described in the table of Figure 5 and illustrated in the graph above, when x increases, a value of BOP is changed around where BOP is 0.23 or “1- x ” is 0.8 (i.e. $x = 0.2$). When BOP is more than 0.23 or $x > 0.2$, the changing rate of BOP is small. In other words, a crystal structure is stable when BOP is more than 0.23 or $x > 0.2$. Dahn does not teach or suggest the critical point of BOP or range of $0.2 < x < 0.3$. Therefore, Dahn does not inherently disclose the claimed BOP value and as such, fails to identically disclose each element of the claimed invention.

Moreover, the Examiner's attention is directed to the comparative data of the present specification, depicted at Figures 5-7 and 10, which clearly supports the claimed relationship between the BOP value and the Li-deficiency. In contrast with the present invention, Dahn fails to disclose or remotely suggest the claimed BOP value. Therefore, the references fail to disclose every limitation of the present claims. Thus, the rejection is not valid and should be withdrawn for at least these reasons.

Claim 17 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Dahn et al. (U.S. Pat. No. 6,168,887). Applicants respectfully traverse the rejection of claim 17 for substantially the same reasons as outlined above since Dahn does not disclose or remotely suggest every limitation of the independent claims. Accordingly, dependent claim 17 is patentably distinct in view of its dependency from independent claim 21.

It is believed that all pending claims are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

09/929,359

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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